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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,310	10/31/2003	Tadashi Shimazaki	16UL02095	9803
7590 Patrick W. Rasche Armstrong Teasdale LLP Suite 2600 One Metropolitan Square St. Louis, MO 63102				
			EXAMINER RAMIREZ, JOHN FERNANDO	
			ART UNIT 3737	PAPER NUMBER
			MAIL DATE 03/26/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/698,310

**Applicant(s)**

SHIMAZAKI, TADASHI

**Examiner**

JOHN F. RAMIREZ

**Art Unit**

3737

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-10, 15-18 is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-14, 19-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8, 11-14 and 19-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "wherein the first direction is non-parallel to a second direction along which ultrasonic pulse transmission are conducted" is considered to be new matter.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1 - 3, 6 - 8, 14 as amended again rejected and new claims 19 - 20 are also rejected under 35 U.S.C. 102(b) as being anticipated by Muzilla et al (US5908391).**

Muzilla et al in col. 4 lines 16 - 29 and col. 6 lines 14 -32 as exemplary teaches an ultrasonic pulse transmission system and method for color flow imaging which specifies a multiple focal zone set and includes firing a first frame of successive scanlines with each individual scanline having a first fixed focus to effectively produce a preliminary frame set, then producing a Second such preliminary frame of scanlines having a further focus, in the course of which there has effectively been an acquiring of a second acoustic line signal belonging to a second frame, such that the adaptively averaged frame which is finally composited from the sets has effectively represented in it a set of acoustic lines each of which has been composited across multiple frames and with intervening differing acoustic lines fired from the next constituent frame prior to returning to firing the same constituent acoustic line for the next focal zone.

[Alternately stated, each acoustic line signal of the adaptively averaged, final. frame has resulted from a firing belonging to a first frame with an interleaving of second acoustic line signals from a subsequent frame prior to conducting the next of P pulse transmissions along the first acoustic line needed to represent the P constituent focal ' zones.]

Since P in Muzilla et al. could reasonably be "2", claim 2 is met.

Since Muzilla et al pertains to electronically steered scanline sets, claim 3 is met. Note that the rejected claims do not distinguish between an initial frame and a finally composited display frame, nor do they necessarily pertain to activities within the assemblage of an initial packet. Hence applicant's arguments notwithstanding, in Muzilla et al further focal zone locations involving different scanlines of data across the

region of interest for colorflow image assemblage are obtained prior to final obtainance of a temporally averaged or zone-blended scanline for the display frame.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 4 and 11 - 12 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Muzilla et al. as argued above, further in view of Mochizuki et al. (US5152294)** since on the one hand the latter evidences that it would have been well- known to combine mechanical scanning orthogonal to electronic planar scanning in order for example to assemble bloodflow information in 3-D, see col. 1, lines 13-26.

In the trivial sense then, if the entire process of Muzilla et al were repeated across successive orthogonal increments to assemble a 3-D volume, then the acoustic line signals associated with the adaptively averaged frames of each scan direction would inherently belong to different spatial frames since mechanical and electronic scanning in the orthogonal direction are well-known for purposes of assembling a 3-D volume, the same interpretation regarding acoustic line signal-frame associations would apply to performing the orthogonal component of a 3-D scan electronically.

**Claims 5, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muzilla et al. as applied above, and further in view of Dubberstein et al.**

(US6159153), since the latter evidences that it was known to perform simultaneous transmissions as analogous to multi-line receptions in association with ultrasound imaging particularly volume imaging in order to improve frame rates.

### ***Allowable Subject Matter***

Claims 9 - 10, 15 - 18 are allowed.

### ***Response to Arguments***

As earlier noted, since Muzilla et al effectively assemble any individual acoustic signal line or scanline by compositing from initial frames and adaptively averaging, the final averaged frame may be characterized as being assembled from individual acoustic line sets obtained by interleaving re-transmission along a given line with different acoustic line receptions in differing scan frames. Since differing scanlines associated with at least the Doppler region of interest for given frames are acquired before returning to scanning at further focal zones and then compositing the result as a weighted average into a display frame comprised of such finally composited scanlines the claims which are rejected yet read on this prior art.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN F. RAMIREZ whose telephone number is (571)272-8685. The examiner can normally be reached on (Mon-Fri) 7:00 - 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian L Casler/  
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